

## CLAIMS:

1. A cannula/catheter introducer comprising  
an outer tubular member which has a proximal end and a distal end,  
5 an inner tubular member adapted for sliding movement within the  
outer tubular member, the inner tubular member having an open proximal end, and a  
closed distal end,  
an end member which closes the open proximal end of the inner  
tubular member,  
10 a sealing means on the end member to sealingly engage with the inner  
tubular member,  
release means on the end member and which is movable between a first  
position where the release means locks the end member to the inner tubular member,  
and a second position where the release means is unlocked from the inner tubular  
15 member and allows the end member to retract through the inner tubular member, the  
inner tubular member being under vacuum, the vacuum functioning to retract the end  
member from the proximal end of the inner tubular member towards the distal end of  
the inner tubular member, the release means being movable from the first position to  
the second position upon movement of the inner tubular member towards the  
20 proximal end of the outer tubular member,  
a needle holder which is attached to the proximal end of the outer  
tubular member, release means on the needle holder and which is moveable between a  
first position where the release means locks the needle holder to the outer tubular  
member, and a second position where the release means is unlocked from the inner  
25 tubular member,  
wherein, upon movement of the inner tubular member towards the  
proximal end of the outer tubular member, the release means on the end member  
unlocks from the inner tubular member, and locks against the release means on the  
needle holder, and causes the release means on the needle holder to move to the  
30 unlocked position, after which the end member and the needle holder is retracted into  
the inner tubular member by virtue of the vacuum in the inner tubular member.
2. The introducer as claimed in claim 1 wherein the inner tubular

member is movable between a retracted position and an extended position, and when in the retracted position, the tubular member is spaced from the needle holder by a short distance, and when in the extended position, the tubular member triggers retraction of the needle holder, the inner tubular member being held captive within the  
5 outer tubular member in the retracted position.

3. The introducer as claimed in claim 2 wherein the distal end of the outer tubular member and the distal end of the inner tubular member comprise captive means, the captive means comprising a longitudinal passageway in the outer tubular  
10 member and a projection extending from the inner tubular member, the projection adapted for movement along the longitudinal passageway to design the travelling limit of the inner tubular member within the outer tubular member.

4. The introducer as claimed in claim 2 wherein the proximal end of the  
15 outer tubular portion is restricted in diameter with respect to the remainder of the outer tubular portion and contains a number of stepped portions to progressively reduce the diameter of the proximal end while still providing internal land portions.

5. The introducer as claimed in claim 2 containing gripping means or  
20 locking means on an inner wall at the proximal end of the outer tubular member which function to assist in locking the needle holder to the proximal end of the outer tubular member.

6. The introducer as claimed in claim 5 wherein the gripping means or  
25 locking means comprises an internal annular groove in the proximal end of the outer tubular member.

7. The introducer as claimed in claim 2 wherein the end member  
comprises a rear portion and a front portion, the rear portion being substantially closed  
30 and containing the sealing means to enable the end member to be sealing engaged to the inner wall of the inner tubular member in a sliding but sealing manner.

8. The introducer as claimed in claim 7 wherein the front portion contains

the release means.

9. The introducer as claimed in claim 8 wherein the release means comprises at least one finger member which is resilient and which is adapted for movement between a natural first position and a deformed second position.

10. The introducer as claimed in claim 9 wherein the at least one finger member, when in the first position, locks against the open proximal wall of the inner tubular member.

11. The introducer as claimed in claim 10 wherein the at least one finger member is provided with an arrowhead configuration to enable the finger member to lock against the open proximal wall of the inner tubular member

12. The introducer as claimed in claim 1 wherein the needle holder has a central body portion which contains a passageway to accommodate a puncture needle, the release means being formed integrally with the central body portion.

13. The introducer as claimed in claim 12 wherein the release means comprises at least one finger member, the finger member comprising a configuration to enable the finger member to engage with the release means on the end member.

14. The introducer as claimed in claim 13 wherein the finger member contains an intermediate projection that engages with a recess in the outer tubular member to releasably lock the needle holder to the outer tubular member.

15. A cannula/catheter inserter, the inserter comprising  
 an outer tubular member which has a proximal end and a distal end,  
 an inner tubular member adapted for sliding movement within the  
 outer tubular member, the inner tubular member having an open proximal end and a  
 closed distal end,  
 a needle holding piston assembly which closes the open proximal end  
 of the inner tubular member,

a sealing means on the needle holding piston assembly to sealingly engage with the inner tubular member,

release means on the needle holding piston assembly and which is movable between a first position where the release means locks the needle holding piston assembly to the inner tubular member, and a second position where the release means is unlocked from the inner tubular member and allows the needle holding piston assembly to retract through the inner tubular member, the inner tubular member being under vacuum, the vacuum functioning to retract the needle holding piston assembly from the proximal end of the inner tubular member towards the distal end of the inner tubular member, the release means being movable from the first position to the second position upon movement of the inner tubular member towards the proximal end of the outer tubular member,

wherein, upon movement of the inner tubular member towards the proximal end of the outer tubular member, the release means on the needle holding piston assembly unlocks from the inner tubular member, after which the needle holding piston assembly is retracted into the inner tubular member by virtue of the vacuum in the inner tubular member.

16. The inserter as claimed in claim 15 wherein the inner tubular member is movable between a retracted position and an extended position, and when in the retracted position, the tubular member is spaced from the needle holding piston assembly by a short distance, and when in the extended position, the tubular member triggers retraction of the needle holding piston assembly, the inner tubular member being held captive within the outer tubular member such that the inner tubular member can only move by the short distance.

17. A cannula/catheter introducer, the introducer comprising an outer tubular member, an inner tubular member, needle retraction means to enable the puncture needle to be retracted into the inner tubular member upon forward movement of the inner tubular member relative to the outer tubular member, the inner tubular member being substantially inserted into the outer tubular member such that the proximal end of the inner tubular member is adjacent the proximal end of the outer tubular member, the introducer comprising limit means to limit the travel of the inner

tubular member relative to the outer tubular member, the limit means being adjacent a distal end of the introducer.